Culver City General Plan

(Draft)

APPROVED

JUL 22 1996

Culver City
City Council

1994

Noise Element

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(Draft)

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JUL 22 1996

Culver City
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1994

Noise Element

RESOLUTION NO. 96-R102

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF CULVER CITY, CALIFORNIA, ADOPTING THE UPDATE OF FOUR ELEMENTS OF THE CITY'S GENERAL PLAN, INCLUDING THE LAND USE, CIRCULATION, OPEN SPACE AND NOISE ELEMENTS

(General Plan Amendments, GPA Nos. 95-02, 95-03, 95-05 and 95-06)

WHEREAS, the City prepared the General Plan Update in conformance with State and local planning law and practices in order to update the Land Use, Circulation, Housing, Open Space and Noise Elements of the City's General Plan; and

WHEREAS, throughout 1992-1994 the City Council-appointed General Plan Advisory Committee met to identify issues, explore a range of policy options based upon land use development scenarios, and develop five Draft General Plan Elements; and

WHEREAS, on February 11, February 25, March 16, March 28, April 8, April 26, August 30, October 5 and November 1, 1995, the Planning Commission conducted duly noticed public hearings fully considering the draft elements, staff reports, environmental information and all testimony presented; and

WHEREAS, at the conclusion of the November 1, 1995, public hearing and thorough discussion of the matter, the Planning Commission recommend by Resolution No. 95-P020 that the November 1, 1995, draft, as amended by the Planning Commission (including final editing by staff for any technical, nonsubstantive changes necessary), of the General Plan Update, including the Land Use, Circulation, Open Space and Noise Elements should be approved and adopted by the City Council and that the Housing Element should be approved in concept by the City Council; and

WHEREAS, on May 2, 1996, the City Council held a special study session on the General Plan Update and Program Environmental Impact Report (EIR) to ask questions, discuss issues, and take public comment; and,

WHEREAS, on July 22, 1996, at a duly noticed public hearing, the City Council held a public hearing, discussed the merits of the General Plan Update and its associated Program EIR, and determined that the motions approving the General Plan Update, including the Land Use, Circulation, Open Space and Noise Elements, presented by staff should be approved and adopted as recommended, subject to certain revisions.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF CULVER CITY, CALIFORNIA, DOES HEREBY RESOLVES AS FOLLOWS:

SECTION 1. Pursuant to the foregoing recitations, the following findings are hereby made:

1. That the Program Environmental Impact Report on the General Plan Update as recommended by Planning Commission Resolution No. 95-P019, has been certified by City Council Resolution No. 96-R 101.

2. It is the continuing policy of the City to periodically initiate public hearings for the purpose of considering whether revisions to the General Plan are advisable based on dynamic community goals and needs.

3. The currently adopted Land Use, Circulation, Open Space and Noise Elements require updating and revision, to reflect the City evolving population and development patterns and related goals, objectives and policies.

4. That the draft Land Use, Circulation, Open Space and Noise Elements conform to State of California planning law.

SECTION 2. Pursuant to the foregoing recitations and findings, the City Council of the City of Culver City, California, hereby approves and adopts, with revisions (as specified in SECTION 3 below):

1. General Plan Amendment, GPA No. 95-02, Land Use Element.

2. General Plan Amendment, GPA No. 95-03, Circulation Element.

3. General Plan Amendment, GPA No. 95-05, Open Space Element.

4. General Plan Amendment, GPA No. 95-06, Noise Element.

5. General Plan Vision and Overview.

6. Replacing the 1978 Land Use Element (as amended), 1975 Circulation Element, 1973 Open Space Element, and 1974 Noise Element, and rescinding the 1975 Scenic Highways Element.

SECTION 3. Pursuant to the foregoing recitations and findings, and prior to finalizing, the Draft General Plan Elements shall be revised as follows:

1. The draft Elements shall be revised to provide for internal consistency with all elements of the Update, and to include final editing by staff for any technical, nonsubstantive changes to bring the Update current to July 1996.

2. The draft Elements shall be revised to provide for exploring the development of Mixed-Use projects in the nonresidential areas, through the drafting of development standards.

3. That the residentially designated areas on both sides of Culver Boulevard, between Elenda Street and Sepulveda Boulevard, shall be designated Medium Density Multiple Family on the 1996 Land Use Element Map, and that the appropriateness of this designation shall be considered within the scope of the Culver Boulevard Focused Special Study.

4. That the properties on both sides of west Washington Boulevard, between Redwood Avenue and Wade Street and Centinela Avenue and McLaughlin Avenue, shall be designated General Corridor on the 1996 Land Use Element Map.

APPROVED and ADOPTED this 24th day of September, 1996.

EDWARD M. WOLKOWITZ, MAYOR
City of Culver City, California

ATTEST:

TOM CRUNK
City Clerk BY:
Ela Valladares, Deputy City Clerk

APPROVED AS TO FORM:

NORMAN Y. HERRING
City Attorney

JR:jm223

RESOLUTION NO. 95-P020

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF CULVER CITY, CALIFORNIA, APPROVING AND RECOMMENDING TO THE CITY COUNCIL APPROVAL AND ADOPTION OF THE UPDATE OF FOUR ELEMENTS OF THE CITY'S GENERAL PLAN, INCLUDING THE LAND USE, CIRCULATION, OPEN SPACE AND NOISE ELEMENTS AND APPROVAL IN CONCEPT OF THE UPDATED HOUSING ELEMENT

(General Plan Amendment, GPA Nos. 95-02, 95-03, 95-04, 95-05 and 95-06)

WHEREAS, the City prepared the General Plan Update in conformance with State and local planning law and practices in order to update the Land Use, Circulation, Housing, Open Space and Noise Elements of the City's General Plan; and

WHEREAS, on February 11, February 25, March 16, March 28, April 8, April 26, August 30, October 5 and November 1, 1995, the Planning Commission conducted duly noticed public hearings fully considering the draft elements, staff reports, environmental information and all testimony presented; and

WHEREAS, at the conclusion of the November 1, 1995, public hearing and thorough discussion of the matter, the Planning Commission determined that the November 1, 1995, draft as amended by the Planning Commission (including final editing by staff for any technical, nonsubstantive changes necessary) of the General Plan Update, including the Land Use, Circulation, Open Space and Noise Elements should be approved and recommended to the City Council for approval and adoption as set forth herein below; and

WHEREAS, at the conclusion of the November 1, 1995, public hearing and thorough discussion of the matter, the Planning Commission determined that the November 1, 1995, draft of the Housing Element update amended by the Planning Commission (including final editing by staff for any technical, nonsubstantive changes necessary) should be approved in concept, pending final revisions reflecting consistency with the final approved Land Use Element update and recommended to the City Council

for approval in concept until and at such time the element has been revised as set forth herein below.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF CULVER CITY, CALIFORNIA, DOES HEREBY RESOLVES AS FOLLOWS:

SECTION 1. Pursuant to the foregoing recitations, the following findings are hereby made:

A. It is the continuing policy of the City to periodically initiate public hearings for the purpose of considering whether revisions to the General Plan are advisable based on dynamic community goals and needs.

B. The currently adopted Land Use, Circulation, Housing, Open Space and Noise Elements require updating and revision, to reflect the City evolving population and development patterns and related goals, objectives and policies.

SECTION 2. Pursuant to the foregoing recitations and findings, the Planning Commission of the City of Culver City, California, hereby approves and recommends to the City Council for approval and adoption:

A. General Plan Amendment, GPA No. 95-02, Land Use Element.

B. General Plan Amendment, GPA No. 95-03, Circulation Element.

C. General Plan Amendment, GPA No. 95-05, Open Space Element.

D. General Plan Amendment, GPA No. 95-06, Noise Element.

SECTION 3. Pursuant to the foregoing recitations and findings, the Planning Commission of the City of Culver City, California hereby approves in concept and recommends the City Council for approval in concept the Housing Element update, GPA No. 95-04, pending final revisions reflecting consistency with the final approved Land Use Element update.

APPROVED and ADOPTED this 1st day of November, 1995.

SANDRA J. LEVIN, CHAIRPERSON
PLANNING COMMISSION
CITY OF CULVER CITY, CALIFORNIA

ATTEST:

JOYCE R. STRAKY
Planning Secretary

(GPA Nos. 95-02, 95-03, 95-04, 95-05 and 95-06)

JR:jrs064

FIGURES

TABLES

Main Street, Christmas 1945

APPENDIX

This Noise Element is one of nine Elements of the Culver City General Plan. The complete list of General Plan documents includes:

General Plan Overview, 19945 +
Land Use Element, 19945 +
Circulation Element, 19945 +
Housing Element, 19945 +
Open Space Element, 19945 *
Noise Element, 19945 +*
Conservation Element, 1973
Seismic Safety Element, 1974
Public Safety Element, 1975
Recreation Element, 1968
Glossary, 19945

Aerial View of Culver City, looking west, 1930's

+ Draft Elements Pprepared by Gruen Associates;
Final Elements prepared by City staff
* Draft Element Pprepared by Gruen Associates
and Takata Associates; Final Element prepared by City staff
+*Draft Element Pprepared by Gruen Associates
and Mestre Greve Associates; Final Element prepared by City staff

PURPOSE OF THE NOISE ELEMENT. Culver City, located on the west side of the Los Angeles basin, is subject to the variety of different types of noise typical of an urban area. The Noise Element of a General Plan is a comprehensive program for including noise control in the planning process. It is a tool for local decision makers to use in achieving and maintaining land uses that minimize the exposure of the community to excessive noises. The Noise Element identifies noise-sensitive land uses and noise sources, and defines areas of noise impact. The goal, objectives, policies and implementation measures are developed to ensure, to the greatest extent feasible, that all segments of the community will be protected from excessive noise intrusion.

ADT	Average Daily Traffic Volume
Ambient Noise	Common background noise
A-Weighting	Adjusted to how people perceive sound
CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	A-Weighted Decibel
Leq	Equivalent Noise Level
Ldn	Day-Night Average Noise Level
Lmax	The Maximum Noise Level
Lmin	The Minimum Noise Level
L%	The Noise Level Exceeded X% of the Time
Noise	Unwanted Sound
Noise Contours	Lines showing where the noise is the same level
Noise Source	Mobile or stationary object which generates noise
OSHA	Occupational Safety and Health Administration
Receptor	Any person or place affected by noise

See Definitions and Standards section for additional terms and details.

The Noise Element follows recently revised State guidelines in the State Government Code, Section 65302(f) and Section 46050.1 of the Health and Safety Code. Because, generally, the major sources of noise in an urban environment are motor vehicles on local streets, the Noise Element quantifies the community noise environment in terms of noise exposure contours for both near and long-term levels of growth and traffic activity. The information will become a guideline both for the development of policies to achieve compatible land uses and to provide baseline levels and noise source identification for local noise ordinance enforcement. The Noise Element must be consistent with other elements of the General Plan. Of particular relevance are the Land Use, Circulation, and Housing Elements. Of these, the Circulation Element has the most direct effect on community noise levels because the Circulation Element establishes policy for the flow of traffic throughout the City. Review of these elements indicates that adequate consideration for noise is included and that the Noise Element is consistent with these General Plan Elements.

BACKGROUND. Culver City first adopted a General Plan Noise Element in 1974. The document provided a comprehensive description of existing noise levels. This 1994 Noise Element is an update of the 1974 element, including updated noise measurements and noise contours. It also includes revised noise standards to better analyze and determine noise impacts and to better protect noise sensitive areas. It is important to note that Culver City is fully urbanized and thus experiences a set of noise problems unique to urbanized areas. In this update of the General Plan Noise Element, the technical description of noise in Culver City has been updated and a series of comprehensive goals, policies, and implementing actions have been developed. The process of updating the Noise Element included a review of existing City policies concerning environmental noise, a review of noise complaints, a review of City procedures for handling noise complaints, and community workshops to solicit citizen input on noise and other issues addressed in the 1994 comprehensive General Plan Update.

The major sections of the Noise Element provide background information, inventory noise conditions, identify noise issues, provide definitions and standards, and present goals, objectives, policies and

implementation measures. The Environmental Impact Report (EIR), prepared as a part of the General Plan update, includes a Technical Appendix that provides more detailed information, and a glossary that defines a number of key terms used in noise assessments.

Noise is defined here as unwanted sound and it is known to have several adverse effects on people. Criteria have been established to help protect the public health and safety and to prevent disruption of certain human activities. These criteria are based on such known effects of noise on individuals as hearing loss (not generally a factor with community noise), communication interference, sleep interference, physiological responses, and annoyance. Each of these potential noise impacts on people are briefly discussed in subsequent sections. Examples of typical noise sources and their corresponding noise levels are listed in Table N-1, Examples of Typical Sound Levels.

REGIONAL NOISE. Culver City is located in an area of southern California that is saturated by regional noise sources, such as freeways and airports. These sources generate noise that can be heard in noise sensitive areas throughout the City. The City is bordered by three major freeways. The Marina (SR-90) Freeway is located in the southwest area of the City and terminates at Slauson Avenue. The San Diego (I-405) Freeway runs through the western half of the City, while the Santa Monica (I-10) Freeway, currently the busiest freeway in the state, runs adjacent to the northern City limits. Unlike the other two freeways, ~~T~~the Santa Monica ~~(10)~~ Freeway ~~is far enough from~~ does not enter the City. However, Santa Monica Freeway noise does ~~limit that there is no impact on the~~ Culver City. The City is also located within a few miles of two busy southland airports.

Los Angeles International Airport, the busiest airport in southern California, is located approximately two miles to the southwest. Santa Monica Airport is located about two miles north of the western part of Culver City. As a result, the City is subject to both jet aircraft and helicopter noise events. Sports and other outdoor events at West Los Angeles College, located to the southeast of the City, and Culver City High School are another source of noise for the local residents.

EXISTING CITY NOISE LEVELS. A complete description of the noise environment includes a community noise measurement survey, identification of noise sources and noise sensitive land uses, and noise contour maps.

Noise Measurements. A review of noise issues and identification of major noise sources in the community provided the initial base for development of the community noise survey. Twenty-eight (28) sites were selected for measurement of the noise environment in Culver City. The measurement locations were selected on the basis of proximity to major noise sources and noise sensitivity of the surrounding land uses. The measurement locations are shown in Figure N-1, Noise Measurement Locations. Sites 1 - 10 were at or near the same area as those measurement locations used in the 1974 Noise Element. A comparison of the data from these sites is under *Findings* (in this section), and reveals how the noise environment throughout the City has changed in the past 20 years.

In the noise measurement program, the quantities measured were the average or Equivalent Noise Level (Leq), the maximum noise level (Lmax) and the Percent Noise Levels (L%). Percent Noise Levels are a statistical method of characterizing the distribution of the measured noise levels. The designation L01 refers to the noise level exceeded 1% of the time and represents the peak noise level measured; L50 is the level exceeded 50% of the time and represents the median noise level; L99 is the noise level exceeded 99% of the time and represents the background or ambient noise level, and so on.

The noise measurement program was conducted in two segments. The short-term [15-minute Leq and percentile distribution] measurements were taken on July 21-22, 1993 during the day, at 22 locations throughout the City (numbers 1-22 on Figure N-1, Noise Measurement Locations). These measurements are taken in such areas as the west

Table N-1
EXAMPLES OF TYPICAL SOUND LEVELS
(A-Weighted Sound Levels)

dBA	OVER-ALL LEVEL Sound Pressure Level Approx. 0.0002 Microbar	COMMUNITY (Outdoor)	HOME OR INDUSTRY	LOUDNESS Human Judgement of Different Sound Levels relative to 70 dBA
130	UNCOMFORTABLY LOUD	Military Jet Take-Off with After-burner From Aircraft Carrier @ 50 ft. (130)	Oxygen Torch (121)	120 dBA - 32 times as loud
120	VERY	Turbo-Fan Aircraft at Take Off Power @ 200 ft. (110)	Riveting Machine (110) Rock-N-Roll Band (108-114)	110 dBA - 16 times as loud
110				
100	LOUD	Jet Flyover @ 1000 ft. (103) Boeing 707, DC-8 @ 6080 ft. Before Landing (106) Bell J-2A Helicopter @ 100 ft. (100)		100 dBA - 8 times as loud
90	LOUD	Power Mower (96) Boeing 737, DC-9 @ 6080 ft. Before Landing (97) Motorcycle @ 25 ft. (90)	Newspaper Press (97)	90 dBA - 4 times as loud
80	MODERATELY	Car Wash @ 20 ft. (89) Prop. Plane Flyover @ 1000 ft. (88) Diesel Truck, 40 MPH @ 50 ft. (84) Diesel Train, 45 MPH @ 100 ft. (83)	Food Blender (88) Milling Machine (85) Garbage Disposal (80)	80 dBA - 2 times as loud
70	LOUD	High Urban Ambient Sound (80) Passenger Car, 65 MPH @ 25 ft. (77) Freeway @ 50 ft. From Pavement Edge, 10:00 a.m. (76±6)	Living Room Music (76) TV-Audio, Vacuum Cleaner	70 dBA
60	MODERATELY	Air Conditioning Unit @ 100 ft. (60)	Cash Register @ 10 ft. (65-70) Electric Typwriter @ 10 ft. (64) Conversation (60)	60 dBA - 1/2 as loud
50	QUIET	Large Transformer @ 100 ft. (50)		50 dBA - 1/4 as loud

SOURCE: Modified from Melville C. Branch and R. Dale Beland, "Outdoor Noise in the Metropolitan Environment" Published by the City of Los Angeles, 1970, p.2.

Continue search for more cur... Example t...

end, Brotman Medical Center, Veterans Memorial Park, Fox Hills, and Syd Kronenthal Park. The long-term [24-hour Leq and Community Noise Equivalent Level (CNEL)] measurements were taken at six locations throughout the City (numbers 23-28 on Figure N-1, Noise Measurement Locations) were taken between July 28 and September 9, 1993. These measurements were taken in the areas of Blair Hills, Culver Crest, on Jefferson Boulevard near the Studio Drive-In, on the west side near Washington Boulevard, west of the intersection of the San Diego and Marina Freeways, and on the east side between Washington Boulevard and National Boulevard.

Table N-2, "Short Term Ambient Measurement Results", shows the location, start time of the measurement, and the primary noise source affecting the noise environment at each of the short-term noise measurement sites. All noise measurements were taken during the day between 9:00 A.M. and 4:00 P.M. When examining the short-term data in Table N-2, it is important to note that most of these sites were in the yards of homes that are close to a road. These data are intended to identify noise levels over a broad range of the City, and are not an assessment of impacts at these sites. In all cases the major sources of noise are motor vehicles on local streets. Table N-2 shows this very clearly. The maximum noise levels are usually owing to trucks or loud cars, with notable contributions from aircraft overflights and people (specifically children's activities near the microphone). The minimum noise levels occur when traffic is very light, when no cars or aircraft are passing by, and when child related activities are minimal.

Examples of various noise environments in terms of the Percent Noise Levels are shown in Figure N-2, "Examples of Daytime Outdoor Noise Levels". The results of the ambient long-term noise measurements are shown in Figures N-3, N-4, N-5, N-6, N-7, and N-8 (Long Term Measurement Result Sites 23 - 28, respectively). Shown in these figures are each measured one-hour Leq as well as the calculated CNEL for that 24-hour period. The first hour listed in Figures N-3 through N-8 is different because the measurements were started at different times of the day.

In Figures N-3 through N-8 the daily 24-hour variation in noise levels can be seen. The horizontal lines in this series are the CNEL (weighted 24-hour logarithmic average). The hours that have high peaks usually correspond to heavy traffic hours or some very loud peak noise event(s). Site 27 shows a very noisy one-hour period that corresponded to the gardener operating typical landscape maintenance equipment. There is a morning peak hour after which traffic noise remains somewhat consistent throughout the day. In the evening, traffic and noise decrease to very low levels in the middle of the night. This pattern is typical for an urban area.

Sources of Noise. Sources of noise in Culver City fall into two basic categories: transportation-related and stationary-related sources. Transportation-related noise sources can be categorized by freeways, aircraft overflights, and major and minor arterial roadways. These include noise from automobiles, trucks, motorcycles, and aircraft. Motor vehicle noise is of concern because it is characterized by a high number of individual events that often combine to create a sustained noise level, and because of its proximity to areas sensitive to noise exposure. Aircraft operations, though infrequent, may generate high noise levels that can be disruptive to human activity.

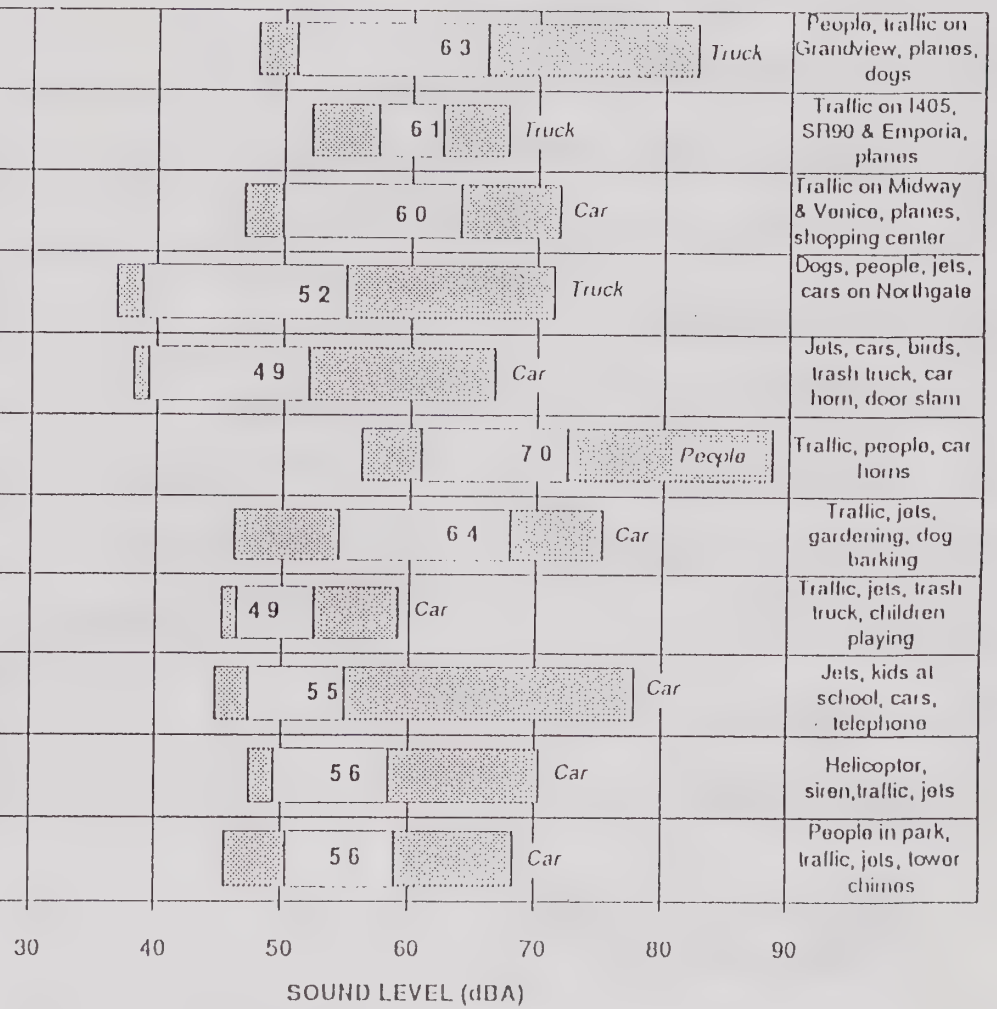
Noise that falls into the stationary source category typically includes industrial and commercial noise, entertainment, sporting or other outdoor events at educational institutions, construction and maintenance noise, machinery noise, and passenger and delivery vehicle noise. Passenger and delivery vehicle noise is included with the stationary sources because the noise occurs at certain sites where the activity is generated. (Discussion continued on page N-15.)

FIGURE N-1
Noise Measurement Locations

FIGURE N-1
Noise Measurement Locations

CULVER CITY
GENERAL PLAN

Site	Location (time)	Land Use	Noise Sources
1	4031 Grand View Blvd. (12:45)	Res., Comm.	People, traffic on Grandview, planes, dogs
2	5442 Emporia Ave. (2:45)	Residential	Traffic on I405, SR90 & Emporia, planes
3	3823 Midway (11:33)	Res., Comm.	Traffic on Midway & Venice, planes, shopping center
4	10717 Northgate St. (9:20)	Residential	Dogs, people, jets, cars on Northgate
5	4381 Motor Ave. (10:13)	Residential	Jets, cars, birds, trash truck, car horn, door slam
6	9711 Washington Blvd. (11:14)	Commercial	Traffic, people, car horns
7	Higuera & Krueger Sts. (11:51)	Residential	Traffic, jets, gardening, dog barking
8	4275 Lincoln Ave. (10:40)	Residential	Traffic, jets, trash truck, children playing
9	3234 Roberts Ave. (1:12)	Res., School, Park	Jets, kids at school, cars, telephone
10	10876 Marietta Ave. (11:09)	Residential	Helicopter, siren,traffic, jets
11	Coombs Ave. & Wagner St. (10:45)	Residential, Park	People in park, traffic, jets, tower chimes



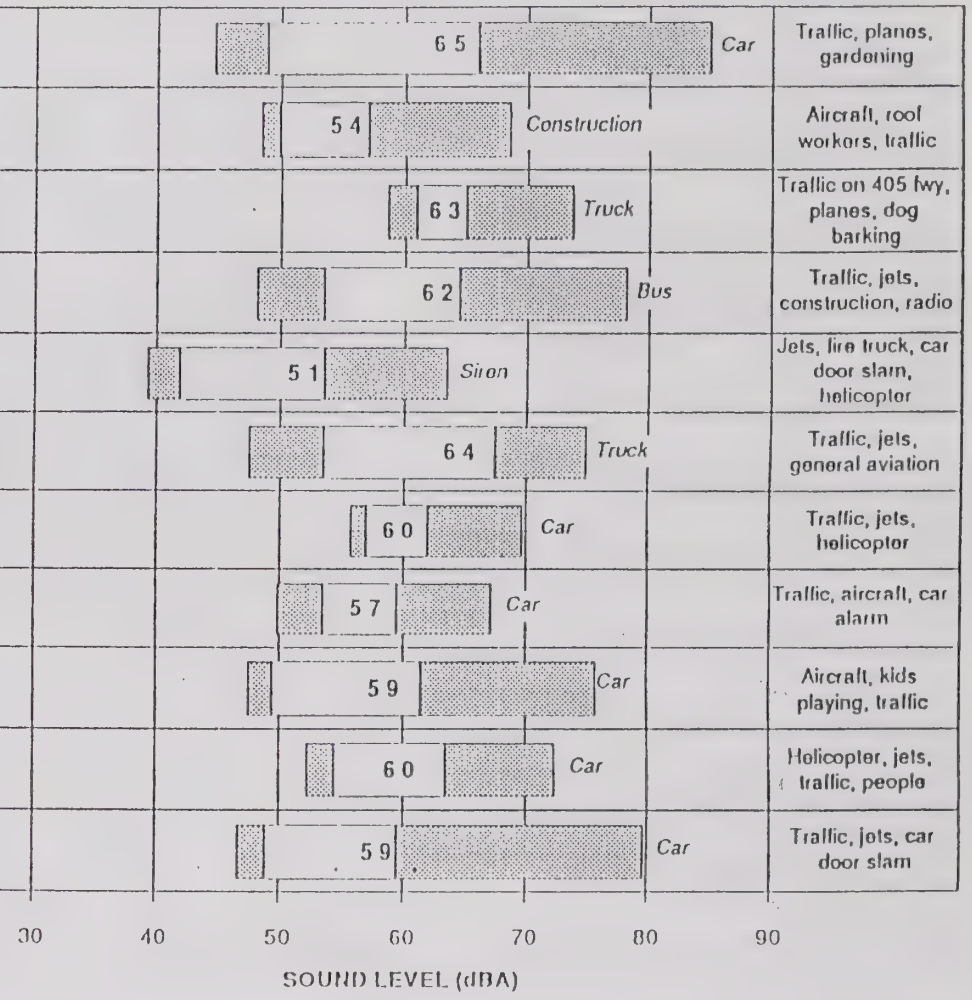
Legend: Leq — Cause of Lmax

Lmin L90 L10 Lmax

NOTE: ALL NOISE MEASUREMENTS TAKEN DURING THE DAY BETWEEN 9:00 AM TO 4:00 PM

TABLE N-2
SHORT TERM AMBIENT MEASUREMENT RESULTS

Site	Location (time)	Land Use	Noise Sources
12	3404 Cattaraugus Ave. (12:32)	Residential	Traffic, planes, gardening
13	11100 Orville St. (10:10)	Residential	Aircraft, roof workers, traffic
14	11425 McDonald St. (9:28)	Residential	Traffic on 405 fwy, planes, dog barking
15	Buckingham Pkwy & Windsor Way (3:55)	Res., Comm.	Traffic, jets, construction, radio
16	4538 Jasmine Ave. (9:48)	Residential	Jets, fire truck, car door slam, helicopter
17	3932 Walgrove Ave. (2:14)	Residential	Traffic, jets, general aviation
18	4062 Globe Ave. (12:20)	Residential	Traffic, jets, helicopter
19	11257 Hannum Ave. (3:12)	Res., Comm.	Traffic, aircraft, car alarm
20	3907 Huron Ave. (11:56)	Residential	Aircraft, kids playing, traffic
21	4124 Jasmine Ave. (2:14)	Residential	Helicopter, jets, traffic, people
22	4129 McConnell Blvd. (2:47)	Res., Comm.	Traffic, jets, car door slam

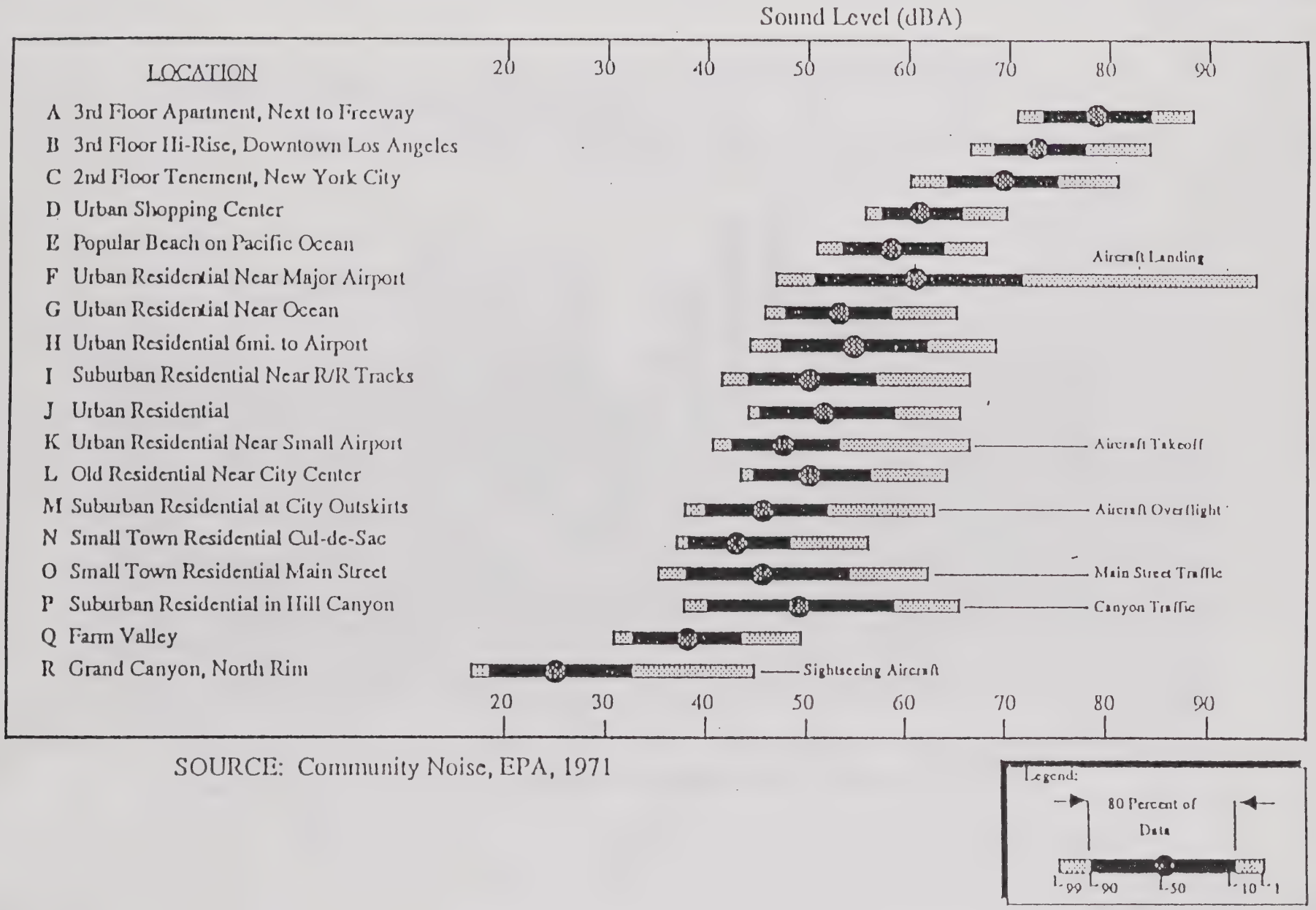


Legend: Leq; Cause of Lmax

Lmin L90 L10 Lmax

NOTE: ALL NOISE MEASUREMENTS TAKEN DURING THE DAY BETWEEN 9:00 AM TO 4:00 PM

TABLE N-2 (Continued)
SHORT TERM AMBIENT MEASUREMENT RESULTS



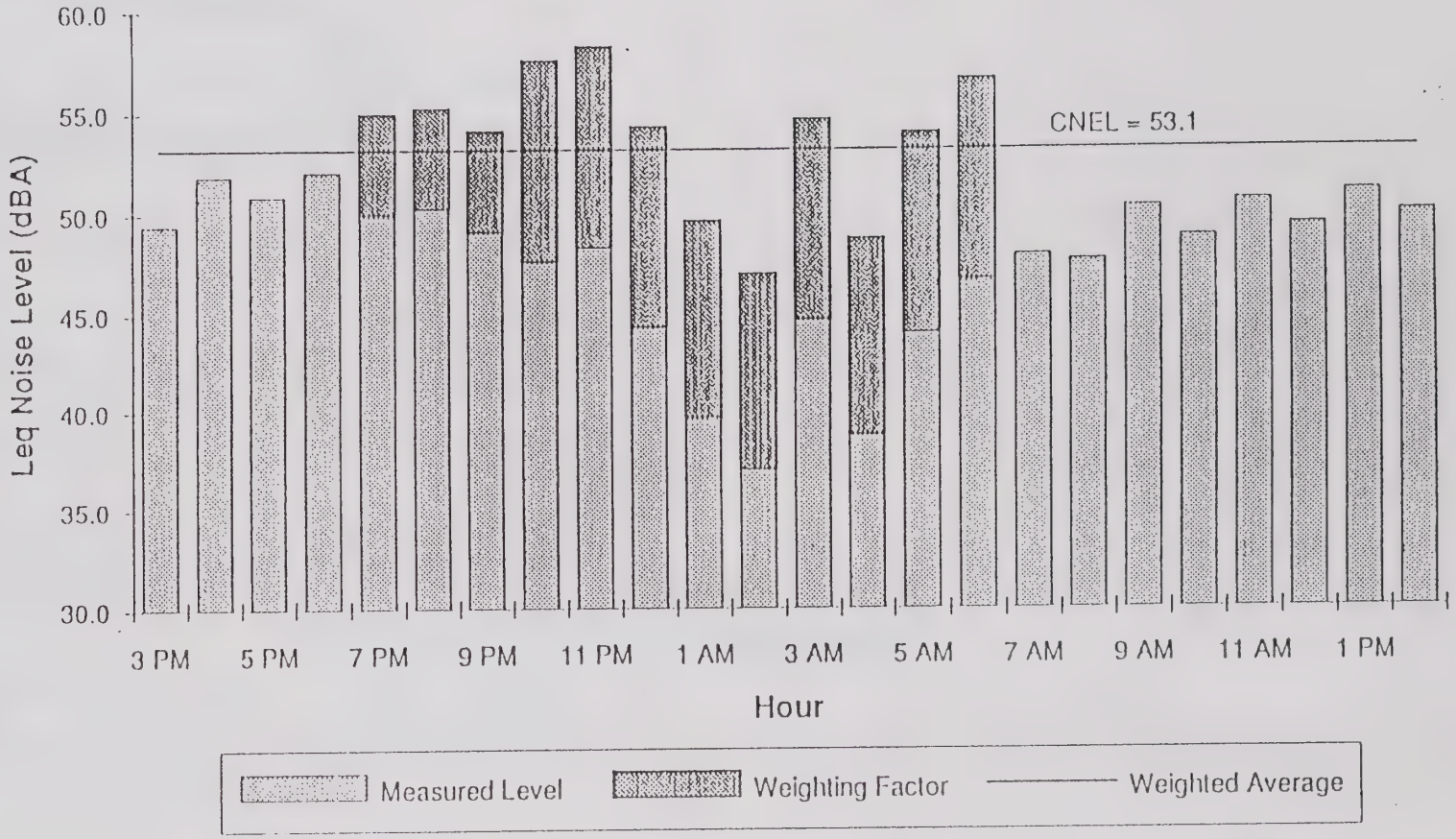
SOURCE: Community Noise, EPA, 1971

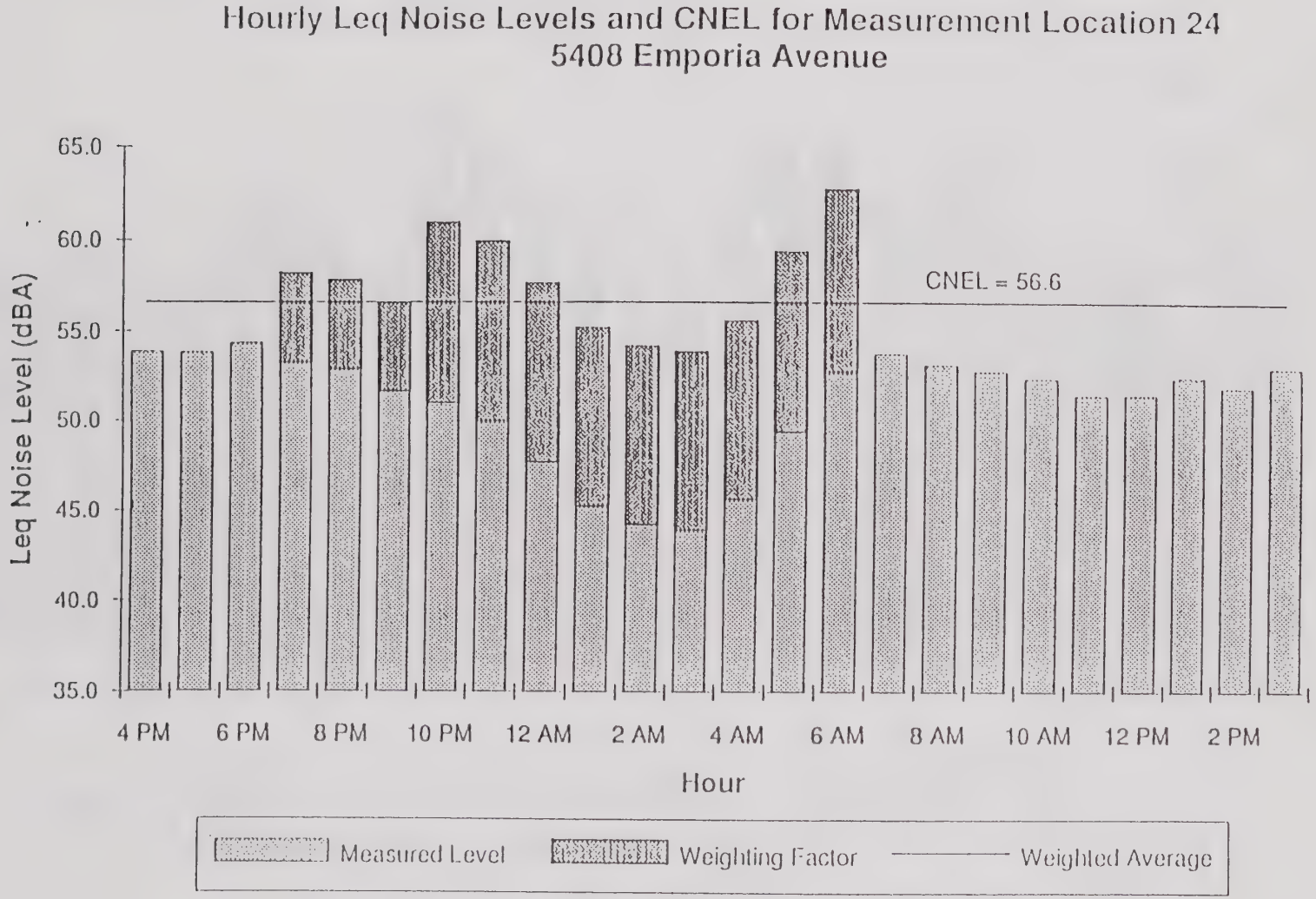
CULVER CITY
GENERAL PLAN

FIGURE N-2

Examples of Daytime Outdoor Noise Levels

Hourly Leq Noise Levels and CNEL for Measurement Location 23
10757 Stephon Terrace

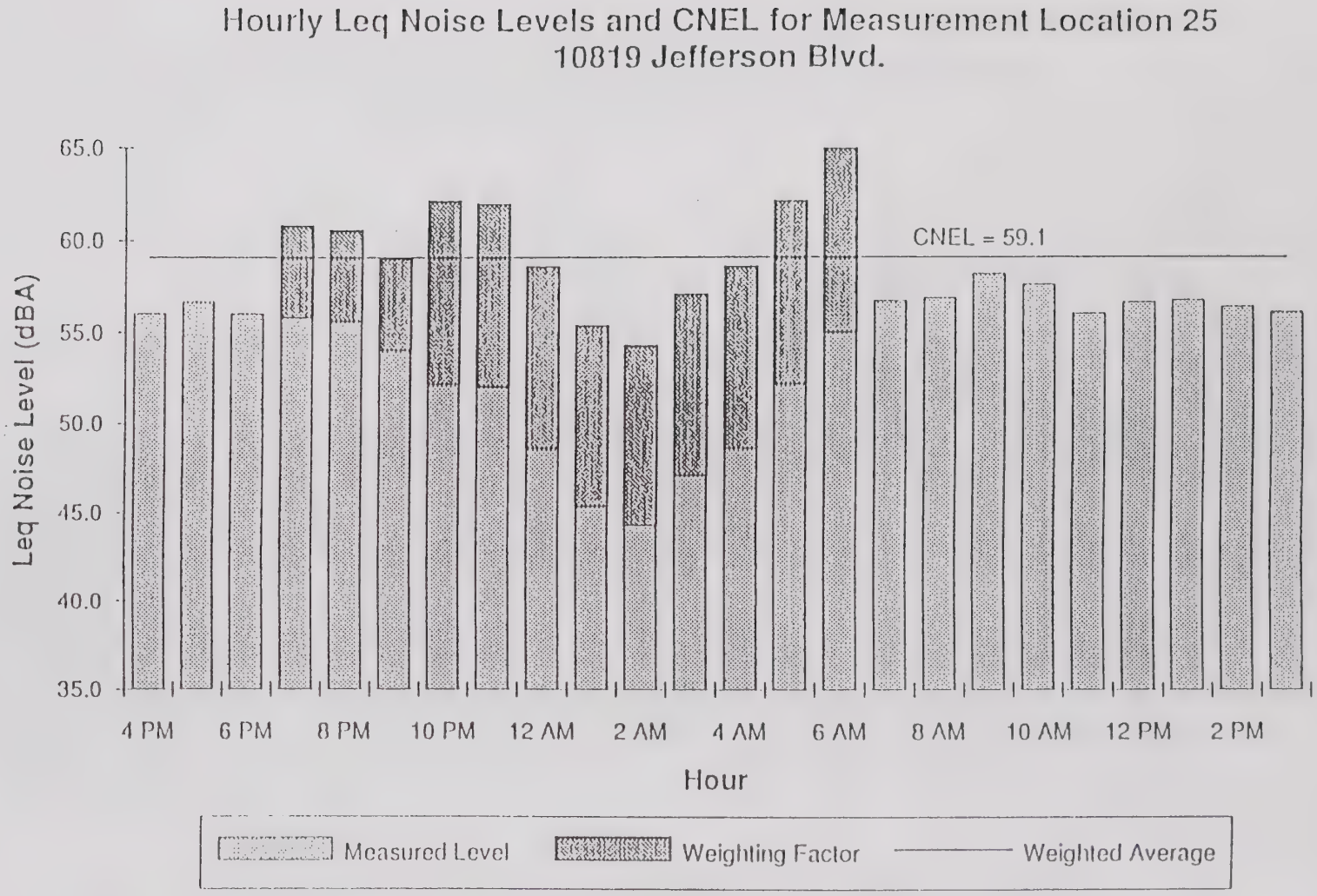




CULVER CITY
GENERAL PLAN

FIGURE N-4

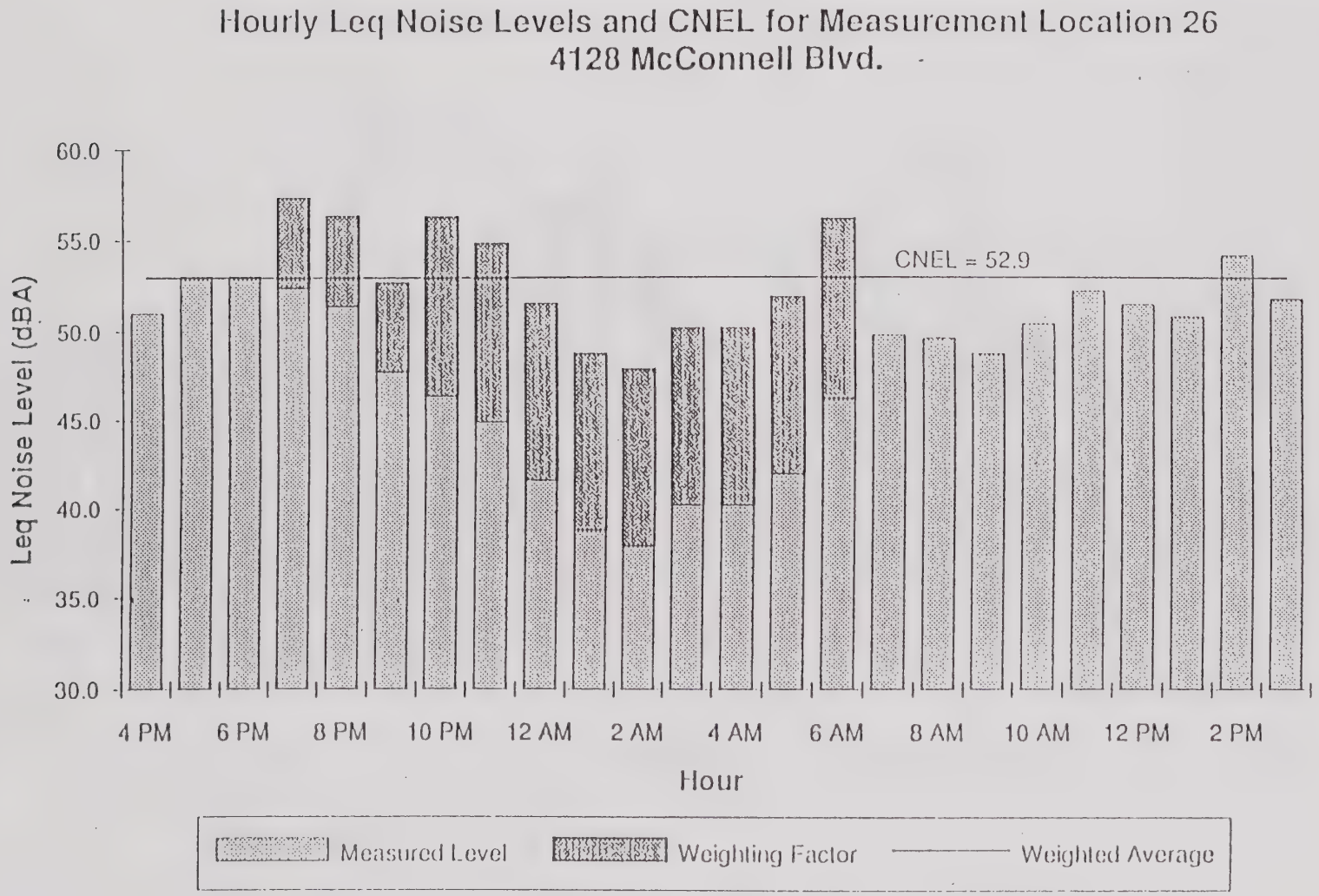
Long Term Measurement Results Site 24



CULVER CITY
GENERAL PLAN

FIGURE N

Long Term Measurement Results Site 2



CULVER CITY
GENERAL PLAN

FIGURE N-6

Long Term Measurement Results Site 26

Hourly Leq Noise Levels and CNEL for Measurement Location 27
3433 Fay Avenue

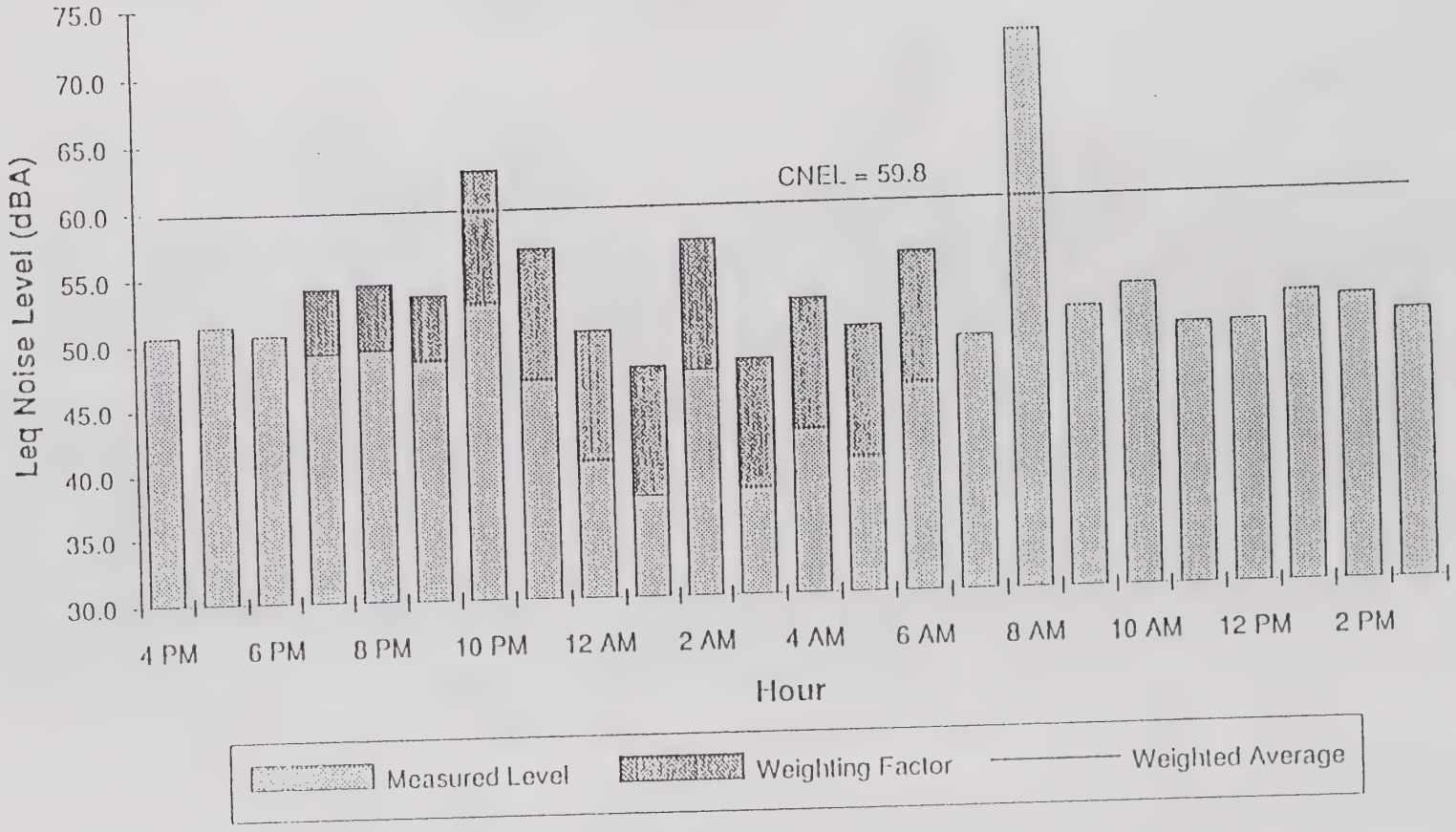


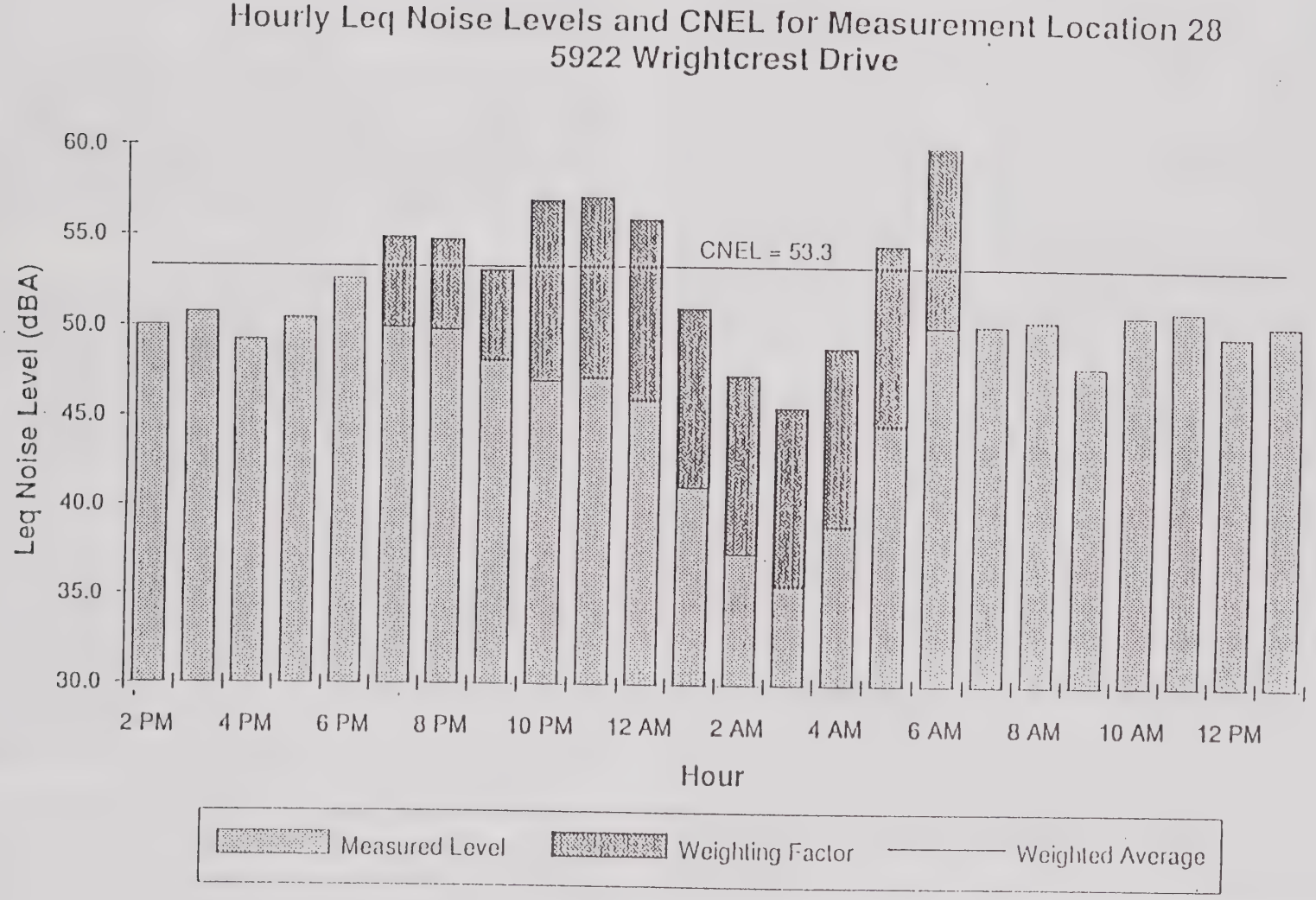
FIGURE N

CULVER CITY
GENERAL PLAN

Long Term Measurement Results Si

N-12

NOISE ELEME



CULVER CITY
GENERAL PLAN

FIGURE N-8

Long Term Measurement Results Site 28

In Culver City, these sources include business centers, such as Fox Hills Mall and Studio Village Shopping Center, employment centers that range in size from major movie studios, such as Sony Pictures Studios, to such small industrial operations as Westside Business Park; and institutional sources such as West Los Angeles College and the high school. (Discussion continued on page N-15.)

Many of the smaller operations are located in strip-commercial zones along Washington and Sepulveda Boulevards adjacent to residential land use. The types of noise disturbance from stationary source activities can range from short-duration, loud events, such as trucks accessing the facility, as explained on page N-4, to continuous noise from mechanical sources, such as refrigeration units or compressors.

Noise Problems. Potential noise problems that are typically found in urbanized areas are grouped into five categories including late-night entertainment, construction and maintenance, machinery, vehicle noise (including aircraft), and general population noise.

Late-night entertainment (restaurants, bars, and clubs). The primary noise sources at venues supporting late-night entertainment are people and their automobiles at very late hours, and live or recorded music emanating from the establishments.

Construction and maintenance noise. The primary noise sources during construction and maintenance are excavating equipment, trucks traveling on and off site, and machinery and power tools required for the project. Although construction and maintenance activities may only occur from a few days to a couple of months, the noise levels form these activities can at times be quite high and very annoying to surrounding residents.

Machinery noise. The primary sources of machinery noise in residential areas include pumps from pools and spas, power tools in garages, gardening tools, and gasoline-powered leaf blowers. Specific issues of concern are enforcing the noise ordinance, especially at night, and whether or not the ordinance is an effective means of controlling machinery noise.

Vehicle noise. This problem refers to night and early morning activity from passenger, and delivery and service vehicles including government vehicles, and aircraft and helicopter overflights of residential and/or commercial areas. The resulting noise from these activities is common and the adjacent neighbors are frequently disturbed.

General population noise. It is recognized that in a high-density urban area, the general population noise is higher than in low-density rural environments. The greater the number of persons who are placed closer together, the greater the overall noise level.

David O. Selznick Studio, 1930s (The Culver Studios), 1950s

Noise Sensitive Receptors. To assess completely the noise environment in the City, noise sensitive receptors must also be identified. Within Culver City, land uses that are sensitive to the noise environment include the following: residential neighborhoods, hotels and motels, trailer parks, long-term medical or mental care facilities, various public and private schools, libraries, business and professional office buildings, churches and other places of worship, concert halls and restaurants.

Noise Measurement Survey Methodology. Based upon the identification of major noise sources and the location of sensitive receptors, a noise measurement survey was conducted. The function of the survey was threefold: first, to determine the existing noise levels at noise-sensitive land uses; second, to provide empirical data for the correlation and validation of the computer-modeled noise environment; and third, to obtain an accurate description of the ambient noise levels in various neighborhoods throughout the City.

Noise contours for all of the major noise sources in Culver City were developed from the traffic levels for these sources. The contours are expressed in terms of the Community Noise Equivalent Level (CNEL). The existing conditions scenario is derived from 1991 traffic volumes and environmental conditions. The 1991 traffic volumes were used in the noise modeling because they represent the most recent comprehensive traffic survey conducted by the City.

The noise environment in Culver City was modeled using a comprehensive noise measurement survey of existing noise sources and incorporating these results into computer noise models. Estimates of future noise levels were derived from computer noise models. The noise environment is commonly presented graphically in terms of lines of equal noise levels, or contours. The measurement and modeling are briefly described below.

Community Noise Contours. The existing and projected future noise contours for Culver City are presented in Figure N-9, "Existing (1991) Noise Contours" and Figure N-10, "Future (2001<u>0</u>) Noise Contours" (Enlarged copies of these figures are provided in the pocket on the inside of the back cover). The contours are based on the existing and projected conditions of traffic within the City and reflect noise levels relative to the distance from major traffic corridors. The average daily traffic (ADT) volume, the traffic speed, and the percentage of automobiles and trucks are all factors that contribute to the calculation of the noise level for a given roadway. The methodology used for computing the noise contours is presented in the Culver City General Plan Noise Element Technical Appendix, in the EIR.

Noise contours represent lines of equal noise exposure, just as the contour lines on a topographic map are lines of equal elevation. The contours shown on the map are the 60 and 65 decibels (dB) CNEL noise level for most roadways and 60, 65, and 70 dB CNEL contours for the San Diego (I-405)–and Marina (SR-90)–Freeways. Noise contours can be used as a guide for land use planning (see Findings discussion).

The contours presented in this report are a graphic representation of the noise environment. These distances to contour values are also shown in tabulated format in the General Plan Environmental Impact Report Technical Appendix. While topography and intervening buildings or barriers have a very complex effect on the propagation of noise,the topographic effect is not included in these contours, and therefore the contours represent a conservative result of the modeling information.

Findings. The predominate-<u>predominant</u> noise in Culver City, as in most other communities, comes from transportation-related noise sources, including motor vehicles. A number of freeways and arterial roadways are the source of significant noise levels for those

FIGURE N-9

Existing (1991) CNEL Noise Contours

CULVER CITY
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neighborhoods directly adjacent to them. Santa Monica Municipal Airport, located northwest of Culver City, and Los Angeles International Airport, located to the southwest, contribute to the noise environment. Additionally, helicopter operations result in some single-event disturbances from occasional overflights. The San Diego Freeway and Ballona Creek are established helicopter corridors with frequent operations.

Other noise within the City is from stationary-related sources, including industrial and commercial activities, site specific construction activities and site specific vehicular traffic. Construction traffic includes the movement of heavy equipment such as cranes, drilling rigs, earth movers and other equipment found primarily at construction sites and not generally on local arterials. The noise environment in Culver City is typical of what would be expected within a major urban area such as the Los Angeles Basin.

Noise measurement sites 1 - 10 were at or near locations used in the 1974 Noise Element. Seven sites were in areas that are primarily residential; and three sites were by the freeways, in a commercial area, and in a residential area adjacent to commercial development. The average noise level for the seven residential measurements made in 1974 was about 55 dBA Leq. The average noise level for these measurements in 1993 was about 56 dB Leq. This shows that growth throughout the City in the past 20 years has had a small effect on the ambient noise level in the residential areas in the City. One of the remaining sites, Site 2, was near the transition road from the southbound San Diego Freeway to the westbound Marina Freeway, and the 1993 measurement was about 6 dB quieter than in 1974. This change is due primarily to the construction of a wall along the transition road. The recent measurement at Site 7 was influenced by a gardener's power tools, subsequently the level was 10 dB higher than the previous measurement. The recent measurement at Site 6 picked up traffic on Washington Boulevard, and as a result was about 11 dB higher than previously.

The noise measurement sites and the levels measured in 1974 and in 1994 are listed below. Also listed are projected noise levels at these locations for the year 2010. Residential areas throughout the City may experience about the same increase as has been seen over the past twenty years. The areas located next to arterials and freeways will see an increase in noise level directly proportional to the traffic volume on the adjacent roadway.

SITE	dB LEVEL IN 1974	dB LEVEL IN 1994	dB LEVEL IN 2010
1	61	63	63
2	67	61	62
3	56	60	62
4	54	52	53
5	50	49	49
6	59	70	71
7	54	64	55
8	53	49	51
9	54	55	55
10	58	56	57

VISION FOR THE NOISE ELEMENT: The vision for the Culver City General Plan Noise Element is to protect and enhance the quality of life the residents enjoy by minimizing the impacts of any existing or future projects on those who live in the City. This may be accomplished by coordinating circulation and land usage for maximum protection against noise exposure from impacts of future projects (such as a light rail system, a major employment center or retail centers). Updating mitigation measures is important to ensure that future projects implement the latest proven technologies to reduce the generation of noise at the source. A local government has little direct control of certain transportation noise at the vehicle source because of preemption by the State and Federal Government. The City, however, can effectively mitigate transportation noise and reduce the impact of the noise onto the community through the use of noise barriers, land-use planning, site-design review, circulation improvements, truck access restrictions, and enforcement of a noise ordinance.

To support this vision for the Noise Element of the General Plan, the City has the following goal:

- *A peaceful community that minimizes noise disturbance.*

FIGURE N-10

Future (2010) CNEL Noise Contours

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STANDARDS. The Culver City Noise Standards are developed from those of several Federal and State agencies including the Federal Highway Administration, the Environmental Protection Agency, the Department of Housing and Urban Development, the American National Standards Institute, and the State of California Department of Health Services. These standards set limits on the noise exposure level for various land uses. Table N-3, "Interior and Exterior Noise Standards," lists interior and exterior noise level standards and the type of occupancy to which they should be applied.

The San Diego, Freeway (I-405) and the Marina Freeway, (SR-90) and Santa Monica Freeways fall under the jurisdiction of the California Department of Transportation (Caltrans) (As indicated on page N-2, Santa Monica Freeway noise does not impact Culver City). In order to obtain mitigation measures from Caltrans, the noise from the freeway must exceed a peak-traffic-hour noise standard of 67 dB Leq. This standard applies to the first row of homes closest to the freeway. Mitigating the noise from any other arterial in the City is under the jurisdiction of Culver City. The standards adopted by the City are applied as evaluation criteria to control noise at various land uses from exterior sources. These standards are listed by land use below.

Noise Sensitive Land Uses include single family, multi-family and mobile homes, hotels and motels, long-term medical or mental care facilities, schools, libraries, business and professional office buildings, churches and other places of worship, concert halls and restaurants. The exterior living area of these uses includes single family private yards, and multi-family patios or balconies which are greater than six (6) feet in depth. The State of California currently makes no exterior or interior noise requirements with regard to single family detached homes. The City should consider setting the exterior and interior noise standards for single family detached homes to 65 dB CNEL exterior and 45 dB CNEL interior.

Commercial Type Residential Land Uses include hotels, motels and places for transient lodging. The exterior living area of these uses includes common use areas. The exterior and interior noise standard for these land uses is 65 dB CNEL exterior and 45 dB CNEL interior. The California Noise Insulation Standards (California Administrative Code, adopted February 22, 1974) requires that "Interior community noise levels (CNEL/LDN) attributable to exterior sources shall not exceed an annual CNEL or LDN of 45 dB in any habitable room, with windows closed." The requirements states that this standard be applied to all new hotels, motels, apartment houses and dwellings other than detached single-family dwellings. The State also requires that residential buildings or structures proposed to be located within the 60 dB contour be flagged for a noise study. Any such buildings adjacent to thoroughfare, railroad or rapid-transit routes shall require an acoustical analysis showing that the proposed building has been designed to limit intruding noise to the allowable interior noise level of 45 dB CNEL.

Commercial, Industrial and Institutional Land Uses include retail stores, restaurants, office buildings auditoriums and movie theaters. These land uses are only subject to interior noise standards since normal business or these types of recreational activities generally are not conducted outside. The interior noise standard for amphitheaters, movie theaters, concert halls, auditoriums, meeting halls, movie theaters, hospitals, churches, school classrooms, day care facilities and libraries is 45 dB CNEL. The interior noise standard for gymnasiums, office buildings, research and development facilities, professional offices and City office buildings is 50 dB CNEL. The interior noise standard for commercial retail stores, banks, restaurants and sports clubs is 55 dB CNEL. The interior noise standard for manufacturing, warehousing, wholesaling and utilities is 65 dB CNEL.

PROPOSED LAND USE CATEGORIES		DESIGN STANDARD CNEL	
CATEGORIES	USES	INTERIOR	EXTERIOR
RESIDENTIAL	Single Family, Duplex Multiple Family	45*	65
	Mobile Home	- - -	65°
COMMERCIAL INDUSTRIAL INSTITUTIONAL	Hotel, Motel, Transient Lodging	45	65†
	Commercial Retail, Bank Restaurant	55	- - -
	Office Building, Research and Development, Professional Offices, City Office Building	50	- - -
	Amphitheater, Concert Hall Auditorium, Meeting Hall	45	- - -
	Gymnasium (Multipurpose)	50	- - -
	Sports Club	55	- - -
	Manufacturing, Warehousing, Wholesale, Utilities	65	- - -
	Movie Theatres	45	- - -
INSTITUTIONAL	Hospital, Schools' Classroom	45	65
	Church, Library	45	- - -
OPEN SPACE	Parks	- - -	65

SOURCE: Mestre Greve Associates

INTERPRETATION

INTERIOR NOISE ENVIRONMENT EXCLUDES:
Bathrooms, toilets, closets and corridors.

EXTERIOR NOISE ENVIRONMENT LIMITED TO:
Private yards of single family homes
Multi-family private patio or balcony which is greater than 6 feet in depth, and is not a required emergency fire exit as defined in the UBC.
Mobile home parks
Hospital patios
Park's picnic area
School's playground
Hotel and motel recreation area

* Noise level requirement with closed windows. Mechanical ventilation system or other means of natural ventilation shall be provided as of Chapter 12, Section 1205 of the 1974 UBC.

° Exterior noise levels should be such that interior noise level will not exceed 45 dB CNEL.

† Except those areas affected by aircraft noise.

- - - No applicable standard

TABLE N-3.
INTERIOR AND EXTERIOR NOISE STANDARDS

CRITERIA FOR DEVELOPING NOISE SOURCE REGULATIONS. The underlying purpose of the Noise Element is to provide guidelines to limit community exposure to excessive noise levels, and to integrate this information into land use planning decisions. In addition to the standards previously discussed, criteria have been developed to establish the qualitative basis or ground rules for the City's noise regulations.

Land Use Compatibility of Noise Sources and Receptors. A primary means of protecting the quality of life within a community is through the distribution of land uses. Determining the compatibility of noise sources and receptors becomes one of the gauges for such decision making. This is achieved by establishing standards and criteria that specify acceptable limits of noise for various land uses throughout the City. The recommended criteria used to assess the compatibility of proposed land uses with the noise environment are presented in Table N-4, "Land Use/Noise Compatibility Matrix."

A complete list of noise levels generated from either stationary or transportation-related sources and land uses with which they are compatible is given in this table. Noise concerns are incorporated and addressed in Culver City's land use planning to reduce future noise and land use incompatibilities.

Table N-4 is used in the land planning stage of the development process. It is used to identify project opportunities and constraints. In conjunction with Figure N-9, "Existing (1991) CNEL Noise Contours," this matrix may be used to determine whether a certain type of land use is appropriate in a particular CNEL zone. For example, a residential use in a 60-70 CNEL zone would only be appropriate with certain mitigation. In locations where noise levels impact mixed-use areas, where some receptors are more sensitive to noise than others, the noise level should be mitigated to the more sensitive land use standard.

The Exterior/Interior Noise Standards shown in Table N-3 are the actual design standards that should be used in the project design stage of new projects in the City. Compliance with these standards should be required in the Conditions of Approval or other project requirements and evaluated as part of the City's development review and building permit plan check.

In conjunction with land use distribution decisions, the adoption of a comprehensive noise ordinance is a major tool in protecting the community from excessive noise. Such an ordinance would regulate stationary and transportation-related noise sources.

Regulation of Stationary Noise Sources. The primary goal in regulating stationary noise sources is to protect residential land uses and other identified noise sensitive uses. The impacts from these noise sources are most effectively controlled through the adoption and application of a City Noise Ordinance. The Noise Ordinance should include effective measures against noises like commercial and industrial activities, construction noise, late-night entertainment, spa and pool equipment, air-conditioners, or loud music from establishments; means to control the noise of persons leaving places of entertainment. In order to control noise generated from stationary sources, and single event noise, standards should place a limit on the noise level and the time that noise may occur during any hour of the day. A penalty of an appropriate amount, e.g., 5 dBA, should be incorporated for pure tone noise. Typical noise ordinance levels and durations are listed as follows:

DAYTIME LEVELS (7:00 a.m. - 10:00 p.m.)	NIGHTTIME LEVELS (10:00 p.m. - 7:00 a.m.)	DURATION
55 dBA-Leq	50 dBA-Leq	30 minutes
60 dBA-Leq	55 dBA-Leq	15 minutes
65 dBA-Leq	60 dBA-Leq	5 minutes
70 dBA-Leq	65 dBA-Leq	1 minute
75 dBA-Leq	70 dBA-Leq	NEVER

This means that 55 dBA Leq may not be exceeded for more than 30 minutes out of any hour between 7:00 a.m. and 10:00 p.m. These standards refer to the average noise levels (leq) of short term measurements (10-15-min.) made at the property line of the noise sensitive receptor. They should not be confused with the long term CNEL measurement.

It is also important that the City develop procedures which enforce these standards. Mitigation of construction and maintenance noise is largely dependent upon enforcement of the noise ordinance and adequate consideration of construction noise impacts during the planning, review and approval of projects in or adjacent to established residential or other noise sensitive areas.

Regulation of Transportation-Related Noise Sources. Within Culver City there are a number of transportation-related noise sources, including freeways, aircraft overflight corridors, major arterials, and collector roadways, that are major contributors of noise. Policies to reduce their influence on the community noise environment are an essential part of the Noise Element. In brief, these policies include coordinating with the California Department of Transportation (Caltrans), to complete the installation of freeway noise barriers appropriate noise mitigation measures along I-405 the San Diego, Santa Monica, and Marina Freeways to effectively attenuate freeway noise for existing noise sensitive land uses. The City should shall coordinate with the Metropolitan Transportation Agency Authority (MTA) to ensure that the noise mitigation measures are integrated into the design of future light-rail projects near noise sensitive land uses. The City should encourage the use of equipment which includes the latest in noise reduction technology. Limit truck movements to those arterials designed to handle the traffic, and those located farther from noise sensitive areas. Coordinate with the Air Traffic Control Division of the FAA regarding any possible future changes in flight paths of helicopters and aircraft into and out of LAX and Santa Monica Airport. Encourage new departure or arrival tracks be diverted away from the city to limit the exposure of aircraft noise. A complete list of the policies to help control transportation-related noise are listed in the subsequent section.

PROPOSED LAND USE CATEGORIES		COMPATIBLE LAND USE ZONES						
CATEGORIES	USES	CNEL <55	55-60	60-65	65-70	70-75	75-80	CNEL >80
RESIDENTIAL	Single Family, Duplex Multiple Family	A	A	B	B	C	D	D
RESIDENTIAL	Mobile Home	A	A	B	C	C	D	D
COMMERCIAL	Hotel, Motel, Transient Lodging	A	A	B	B	C	C	D
COMMERCIAL	Commercial Retail, Bank Restaurant, Movie Theatres	A	A	A	A	B	B	C
COMMERCIAL INDUSTRIAL INSTITUTIONAL	Office Building, Research and Development, Professional Offices, City Office Building	A	A	A	B	B	C	D
COMMERCIAL INSTITUTIONAL	Amphitheater, Concert Hall Auditorium, Meeting Hall	B	B	C	C	D	D	D
COMMERCIAL	Children's Amusement Park, Miniature Golf Course, Go-Cart Track, Equestrian Center, Sports Club	A	A	A	B	B	D	D
COMMERCIAL INDUSTRIAL INSTITUTIONAL	Automobile Service Station, Auto Dealership, Manufacturing, Warehousing, Wholesale, Utilities	A	A	A	A	B	B	B
INSTITUTIONAL	Hospital, Church, Library Schools' Classroom, Day Care	A	A	B	C	C	D	D
OPEN SPACE	Parks	A	A	A	B	C	D	D
OPEN SPACE	Golf Courses, Cemeteries, Nature Centers, Wildlife Reserves, Wildlife Habitat	A	A	A	A	B	C	C
AGRICULTURE	Agriculture	A	A	A	A	A	A	A

SOURCE: Mestre Greve Associates

INTERPRETATION

ZONE A - CLEARLY COMPATIBLE

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction without any special noise insulation requirements.

ZONE B - COMPATIBLE WITH MITIGATION

New construction or development should be undertaken only after detailed analysis of the noise reduction requirements are made and needed noise insulation features in the design are determined. Conventional construction with closed windows and fresh air supply systems or air conditioning, will normally suffice. Note that residential uses are prohibited with Airport CNEL greater than 65 dB.

ZONE C - NORMALLY INCOMPATIBLE

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in the design.

ZONE D - CLEARLY INCOMPATIBLE

New construction or development should generally not be undertaken.

TABLE N-4
LAND USE/NOISE COMPATIBILITY MATRIX

GOAL: A community that minimizes noise disturbance.

Culver City is exposed to noise from a number of sources throughout the City. Most of the noise in the City is generated by traffic on the major and minor arterial roadways, with the San Diego Freeway (I-405)–being the largest single contributing noise source in the community. Aircraft overflights, including helicopters, from neighboring Los Angeles International and Santa Monica Municipal Airports also affect the residents of the City. Potential noise from future construction, maintenance, and possible rail-transit projects also are a concern to the residents.

OBJECTIVE 1. Land Use Compatibility. Ensure the compatibility of adjacent land uses with regard to noise sources and receptors.

Policy (1.A) Ensure the consistent application of adopted noise standards and criteria in the review of all discretionary land use decisions.

Policy (1.B) Reexamine the City's noise regulations Ordinance on a regular basis to ensure its effectiveness.

Policy (1.C) Ensure the effective enforcement of the City, State and Federal noise levels by all appropriate City departments, and maintain coordination among the agencies involved in noise abatement.

Policy (1.D) Investigate the opportunity to construct barriers to mitigate sound emissions where necessary and where feasible.

Policy (1.E) Identify mediation techniques to help neighbors resolve their differences and be more considerate of the effects of noise.

OBJECTIVE 2. Stationary Noise Sources. Protect those areas that are or may be subject to unacceptable noise from stationary noise sources.

Policy (2.A) Create a comprehensive ordinance establishing noise regulation criteria, and standards for noise sources and receptors to include but not be limited to the following: (see Implementation Measure 1):

- Standards for temporary and "event" noise sources, such as carnivals and entertainment productions.
- Noise reduction features during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses, such as schools, hospitals, convalescent homes, and libraries.
- State Uniform Building Code (UBC) standards for interior community noise levels applied to single-family dwellings.
- Standards for mechanical equipment such as fans, air conditioners, compressors, and exhaust vents.
- Temporary sound barrier installation at construction sites if construction noise is impacting nearby noise sensitive land uses.
- Noise abatement and acoustical design criteria for construction and operation of any new developments.

Policy (2.B) Require addition of noise reduction features to all existing and proposed stationary-related noise sources which exceed established noise standards to reduce impacts on noise sensitive land uses.

Policy (2.C) Coordinate standards and policies with sponsors of sporting events and other outdoor noise generating activities.

Policy (2.D) Pro-actively enforce noise amplification laws concerning nuisances such as car radios, garage bands, boom boxes, and car alarms.

image to be provided in final document

(transit image)

OBJECTIVE 3. Transportation-Related Noise Sources. Protect those areas that are or may be subjected to unacceptable noise from transportation noise sources.

Policy (3.A) Participate with regional transportation agencies in the planning and development of future transportation corridors, including mass transportation, to include noise abatement measures that comply with Culver City standards.

Policy (3.B) Coordinate with regional transportation agencies to ~~incorporate sound attenuation~~ the installation of appropriate noise mitigation measures, including sound walls, along existing freeways and roadways, to mitigate existing noise impacts and as a component in any improvements to existing freeway and roadway facilities.

Policy (3.C) Reduce transportation noise by including noise mitigation measures in the design of new roadway projects and through the coordination of routing.

Policy (3.D) Coordinate with the Air Traffic Control Division of the FAA regarding any future changes in flight paths of helicopters and jets.

Policy (3.E) Mitigate City-controlled transportation-related noise sources (vehicles, etc.) through a program of technological modifications (e.g. mufflers on buses).

Policy (3.F) Limit truck movements to those arterials designed to handle the traffic, and those located farther from noise sensitive areas.

The following section lists the recommended implementation measures for objectives and policies in the Noise Element. Strategies include creation of a comprehensive noise ordinance, measures to address freeway noise, development of standards for land use compared with acceptable noise exposure levels, and reduction of construction noise.

MEASURE 1. CREATE A COMPREHENSIVE NOISE ORDINANCE ESTABLISHING NOISE REGULATIONS AND STANDARDS. The most effective method to control community noise impacts from stationary-related, or non-transportation, noise sources is through application of the City's noise regulations and standards. This revision should consider including, but not be limited to, the following concepts:

A. Equivalent Noise Level (Leq). Establish the noise ordinance metric as an "Equivalent Noise Level" (Leq) measurement to facilitate easier measurements. In some cases Tthis will reduce the complexity of equipment needed to do the measurements and result in a clearer more readily usable measurement result.

B. Consolidate Regulations Consolidate noise and nuisance regulations found in various sections of the Culver City Municipal Code into one noise ordinance. Establish specific noise level limits that can be enforced by objective, scientific measurements. Consider adoption of a pure tone penalty of an appropriate amount.

C. Ban Gasoline-Powered Leaf Blowers. Enact a ban on gasoline powered leaf blowers.

D. Annoyances. Adopt guidelines for the regulation of annoying sounds, including:

- *Kennels* - should be subject to noise standards and compliance measurements.
- *Animals* - such as barking dogs.
- *Alarms* - including those for houses, cars and business.
- *Engines and motors* - including stationary operating vehicles.
- *Mechanical equipment on buildings* - such as fans, air conditioners, vents and compressors. Should be subject to noise standards and compliance measurements.
- *Amplified sounds* - including car radios, bands, boom boxes and home stereos.

E. Human Noise. Recognize that some neighborhood noise problems are best handled through action by public safety personnel (for example, loud parties) and some through enhanced communication between neighbors. This latter idea is meant to address the more human side of noise complaints between neighbors. The City should develop a mediation program to enhance communication between neighboring uses with noise complaint issues. To address the human side of some noise problems, particularly those between arguing or feuding neighbors (residential or commercial or mixed use), enhanced communication between neighbors may bring the best resolution to these types of problems. Develop and maintain dialogue with extended hour businesses as a means of controlling late night noise conflicts.

F. Temporary and Special Events. Establish noise level standards for temporary and "event" noise sources, such as carnivals and entertainment productions. Include in the City's regulations, standards for location criteria, and requirements for temporary noise barriers to protect sensitive receptors.

MEASURE 2. COORDINATE WITH TRANSPORTATION AGENCIES AND DEPARTMENTS. Coordinate with the California Department of Transportation (Caltrans), to complete the installation of freeway appropriate noise barriers mitigation measures along I-405 the San Diego, Santa Monica, and Marina Freeways to effectively attenuate existing freeway noise for existing noise sensitive land uses. The City should encourage the employment of noise mitigation measures in the improvement of freeways or arterial roadways and

support efforts by the transportation agencies to provide for acoustical protection for existing noise sensitive land uses affected by these projects. In particular, when Caltrans seeks environmental clearance for any freeway improvement projects (such as widening and/or HOV lanes), the City should seek to require Caltrans to complete appropriate noise barriers mitigation measures as part of that project as such projects are likely to occur prior to other noise barrier mitigation programs.

Coordinate with the Metropolitan Transportation Agency Authority (MTA) to ensure that noise mitigation measures are integrated into the design of future light-rail projects near noise sensitive land uses. The City should encourage the use of equipment which includes the latest in proven noise reduction technology.

A. Provide Noise Barriers. Mitigate traffic noise through identifying locations for construction of a noise barrier (wall, berm, or combination wall/berm) and coordinate with related transportation agencies to encourage the development of such barriers. Identify specific locations where noise barrier can break the "line of sight" between the source and receiver. The greater the distance the noise must travel around the barrier to reach the receiver, the greater the noise reduction value of the barrier.

B. Continued Evaluation of Truck Routes. Provide for continued evaluation of truck movements and routes in the City to provide effective separation from residential or other noise sensitive land uses. Limit truck movements to those arterials designed to handle the traffic, and those located further from noise sensitive areas.

C. Coordination with State Agencies. Encourage the enforcement of State Motor Vehicle noise standards for cars, trucks, and motorcycles through coordination with the California Highway Patrol and Culver City Police Department.

D. Coordinate with the FAA. Coordinate with the Air Traffic Control Division of the FAA regarding any possible and future changes in flight paths of helicopters and other aircraft into and out of LAX and Santa Monica Airport. Encourage new departure or arrival tracts to diverted away form the City to limit the exposure of aircraft noise.

MEASURE 3. CONTINUE TO ENFORCE NOISE REGULATIONS AND STANDARDS. Continue to enforce the State of California Uniform Building Code that specifies that the indoor noise levels for residential living spaces not exceed 45 dB CNEL due to the combined effect of all noise sources. Continue to enforce the City's noise regulations.

A. Single Family Home Standards. Explore expanding the UBC Title 24 regulations and standards, with regard to interior noise, to single family dwellings.

B. New Construction. Require that new development projects, built near existing residential land use, demonstrate compliance with City noise regulations prior to approval of the project, through the use of design concepts and construction materials.

MEASURE 4. DEVELOP LAND USE/NOISE COMPATIBILITY STANDARDS. Use the standards, presented in Table N-3, "Exterior/Interior Design Standards," and the criteria established in Table N-4, "Land Use/Noise Compatibility Matrix" to assess the compatibility of proposed land uses with the noise environment. These tables are the primary tools that allow the City to ensure noise integrated planning for compatibility between land uses and outdoor noise.

A. Flag Project for Building and Safety Review. For any project in an area louder than 60 CNEL, the project should be flagged for

Building and Safety review for compliance with interior noise level standards.

B. Include Appropriate Mitigation Measures. New developments would be permitted only if appropriate mitigation measures are included such that the standards contained in this Element are met, to the extent feasible.

C. Incorporate Noise Reduction Features. Through the noise regulations and standards, incorporate noise reduction features during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses.

MEASURE 5. IMPROVE REGULATION OF CONSTRUCTION NOISE.

A. Limit Hours of Construction. Clearly state in the Noise Ordinance the limitations on construction related noise.

B. Identify Potential Impacts of Construction on Sensitive Receptors. During the environmental review of all projects requiring extensive construction, determine the proximity of the site to the established residential areas. If the project will involve pile driving, night time truck hauling, blasting, 24 hour pumping (important in areas of high ground water), or any other very high noise equipment, the environmental review shall include a construction noise alternative analysis. From this analysis specific mitigation measures shall be developed to mitigate potential noise impacts. This may include but not be limited to:

- Establish standard noise abatement measures to reduce construction noise impacts, such as requiring temporary, movable noise barriers around the job site, and requiring mufflers on large pieces of grading and construction equipment.
- Requirements to use quieter albeit costlier construction techniques, such as non-squeal concrete finishes or asphalt/rubber paving material.
- Notification of residents (homeowner and renters) of time, duration, and location of construction.
- Relocation of residents to hotels during significantly noisy construction period.
- Developer reimbursement to City for 24 hour on-site inspection to verify compliance with required mitigation.
- Limit hours of operation of equipment which produces significant impact noise or levels noticeably above general construction noise to the hours consistent with those established for construction-related noise.
- Construction projects which require special circumstances or special equipment should be subject to an acoustical analysis by a certified acoustical consultant to determine the extent of possible impacts, and to make recommendations on necessary mitigation measures.

The selection of which of the above measures to include should be determined on a project by project basis depending on the type of equipment used and the proximity to established residential areas. It should also be recognized that during the early planning phases for a project, sufficient data may not be available to determine the extent of construction noise mitigation required. In such cases, the project should be required to prepare this analysis for review as part of the site design or building permit process.

TABLE N-5
NOISE ELEMENT IMPLEMENTATION MEASURES

Action	Priority	Responsibility
1. CREATE A COMPREHENSIVE NOISE ORDINANCE ESTABLISHING NOISE REGULATIONS AND STANDARDS.		
A. Equivalent Noise Level (Leq).		Interdepartmental
B. Consolidate Regulations.		Interdepartmental
C. Ban Gasoline-Powered Leaf Blowers.		Interdepartmental
D. Annoyances.		Interdepartmental
E. Human Noise.		Interdepartmental
F. Temporary and Special Events.		Interdepartmental
2. COORDINATE WITH TRANSPORTATION AGENCIES AND DEPARTMENTS.		
A. Provide Noise Barriers.		Interdepartmental
B. Continued Evaluation of Truck Routes.	ongoing	Interdepartmental
C. Coordination with State Agencies.		Interdepartmental
D. Coordinate with the FAA.	ongoing	Interdepartmental
3. CONTINUE TO ENFORCE NOISE REGULATIONS AND STANDARDS.		
A. Single Family Home Standards.		Interdepartmental
B. New Construction.		Interdepartmental
4. DEVELOP LAND USE/NOISE COMPATIBILITY STANDARDS.		
A. Flag Project for Building and Safety Review.	ongoing	Interdepartmental
B. Include Appropriate Mitigation Measures.	ongoing	Interdepartmental
C. Incorporate Noise Reduction Features.	ongoing	Interdepartmental
5. IMPROVE REGULATION OF CONSTRUCTION NOISE.		
A. Limit Hours of Construction.		Interdepartmental
B. Identify Potential Impacts of Consideration on Sensitive Receptors.		Interdepartmental

Sound is technically described in terms of the loudness (amplitude) and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the Decibel (dB). The standard unit of measure of frequency of a sound is Hertz (Hz) which is equivalent to cycles per second. The human ear is sensitive to frequencies ranging from 20 Hz (cycles per second) to 20,000 Hz. The human ear is not equally sensitive to sound at all frequencies, subsequently a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound-pressure levels to a more usable range of numbers in a manner similar to the way that the Richter scale is used to measure earthquakes. A ten-fold increase in the acoustic energy produces an increase of 10 dB. A doubling of the acoustic energy increases the noise level by 3 dB. In terms of human response to noise, a sound 10 dBA higher than another is perceived to be twice as loud; and 20 dBA higher is perceived as four times as loud; and so forth. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud). Examples of various sound levels in different environments are shown in Table N-1, "Examples of Typical Sound Levels (dBA)".

Noise is defined as unwanted sound, and it is known to have several adverse effects on individuals. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities.

Pure Tone, or Simple Tone Noise is a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished. If measured, Simple Tone Noise shall exist if the one-third octave band sound pressure level in the band with the tone exceeds the arithmetic average of the sound pressure levels of the two contiguous one-third octave bands by: 5 dB for frequencies of 500 Hz and above; by 8 dB for frequencies between 160 and 400 Hz; and, by 15 dB for frequencies less than or equal to 125 Hz.

Noise Sensitive Receptors. Noise affects all types of land uses and activities, although some are more sensitive to high noise levels than others. A "Noise Sensitive Receptor" would be any location where excessive noise levels would interfere with an individual's normal sleeping activities, normal conversation, or ability to work. As mandated by the State, noise sensitive receptors include residential neighborhoods, hotels and motels, trailer parks, long-term medical or mental care facilities, various public and private schools, libraries, business and professional office buildings, churches and other places of worship, concert halls and restaurants. Culver City has a number of these noise-sensitive land uses including a number of public and private schools, day-care centers and rest homes. The distribution of these facilities varies from moderately quiet residential areas to major transportation corridors.

Noise Impacts. There area several potential noise impacts on individuals:

Annoyance is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability. The level of annoyance, of course, depends on the characteristics of the noise (i.e., loudness, frequency spectra, time, and duration), and how much activity interference (e.g. speech interference or sleep interference) results from the noise. The level of annoyance, however, is also a function of the attitude of the receiver. Personal sensitivity to noise varies widely. It has been estimated that 2 to 10 percent of the population are highly susceptible to noise not of their own making, while approximately 20 percent are unaffected by noise. Attitudes are affected by the relationship between the person and the noise source.

When people believe that someone is trying to abate the noise, this will also affect their level of annoyance.

Communication Interference is one of the primary concerns in environmental noise problems. Communication interference includes speech interference and activities such as watching television. Normal conversational speech is in the range of 60 to 65 dBA and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level.

Hearing Loss is, in general, not a concern in community noise problems. The potential for noise-induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments with long-term exposure. In order to protect an individual from potential hearing loss, the Occupational Safety and Health Administration (OSHA) identifies a maximum noise exposure limit of 90 dBA for eight hours per day. Noise levels in neighborhoods, even in very noisy environments near major international airports, are not sufficiently loud to cause hearing loss.

Physiological Responses are those measurable effects of noise on persons resulting in changes in pulse rate, blood pressure, etc. While such effects can be induced and observed, the extent to which these physiological responses cause harm or are signs of harm is not known. Generally, physiological responses are reactions to a loud, short-term noise, such as a rifle shot, or to a very loud jet overflight.

Sleep Interference is a major noise concern in noise assessment and, of course, is most critical during nighttime hours. Sleep disturbance is one of the major causes of annoyance due to community noise. Noise can make it difficult to fall asleep, create momentary disturbances of natural sleep patterns by causing shifts from deep sleep to lighter stages, and cause awakening. Noise may even cause awakening which a person may not be able to recall. Extensive research has been conducted on the effect of noise on sleep disturbance. Recommended values for desired sound levels in residential bedroom space range from 25 to 45 dBA, with 35 to 40 dBA being the norm. The National Association of Noise Control Officials has published data on the probability of sleep disturbance with various single-event noise levels. Based on experimental sleep data as related to noise exposure, a 75 dBA interior noise level event will cause noise induced awakening in 30 percent of the cases.

Noise Scales. Community noise is generally not a steady state and varies with time. Under conditions of non-steady state noise, some type of statistical measurement scale is necessary in order to quantify noise exposure over a long period of time. Several rating scales have been developed to account for the known effects of noise on individuals. These scales are the Equivalent Noise Level (Leq), the Day Night Noise Level (Ldn), and the Community Noise Equivalent Level (CNEL).

Leq is the "energy" average noise level during the time period of the sample. It is a number that represents a decibel sound level. This constant sound level would contain an equal amount of energy as a fluctuating sound level over a given period of time. Leq can be measured for any time period, but is typically measured for 15 minutes, 1 hour or 24 hours.

Ldn is a 24-hour, time-weighted annual-average noise level. Time-weighted means that noise that occurs during certain sensitive time periods is penalized for occurring at these times. In the LDN scale, those events that take place during the night (10 p.m. to 7 a.m.) are penalized by 10 dB. This penalty was selected to attempt to account for increased human sensitivity to noise during the quieter period of a day, when most persons are more likely to be sleeping.

CNEL is similar to the Ldn scale except that it includes an additional 5 dBA penalty for events that occur during the evening (7 p.m. to 10 p.m.) time period. CNEL can be calculated from 24 consecutive one-hour average noise levels. Either Ldn or CNEL may be used to identify community noise impacts within the Noise Element as the difference between the two measurement scales for a given period is

about one to two decibels. Example noise environments in terms of the CNEL scale are shown in Table N-6, Examples of CNEL Noise Levels.

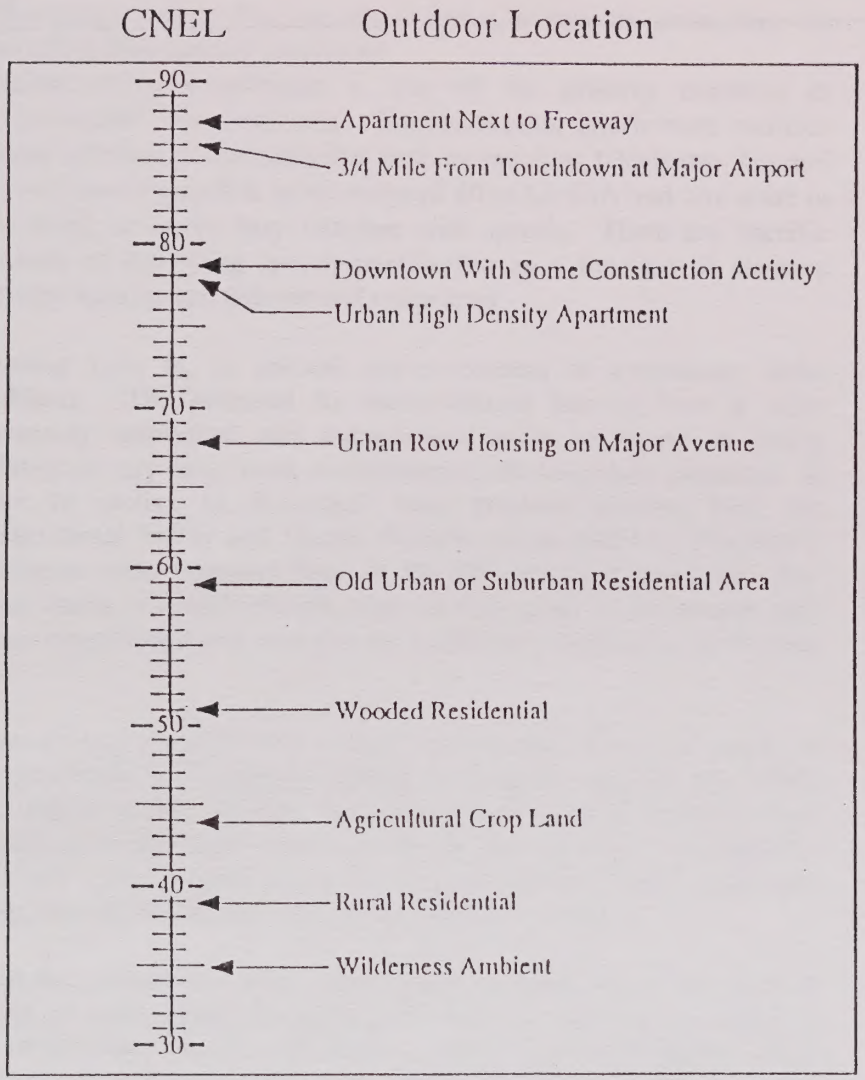

TABLE N-6
EXAMPLES OF CNEL NOISE LEVELS